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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Johannes Theorodus Adriaan Wilderbeek

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

HIGGINS, GERARD T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

10/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,972	<b>Applicant(s)</b> WILDERBEEK, JOHANNES THEORODUS ADRIAAN	
	<b>Examiner</b> GERARD T. HIGGINS	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 10-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/04/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, claims 1-9 in the reply filed on 10/06/2008 is acknowledged. The traversal is on the ground(s) that the Examiner has not shown that every one of the limitations of claim 1 were known in the art. This is not found persuasive because applicants admit in their response on page 6 that liquid crystal materials having low molecular weight components in a dilute anisotropic liquid crystalline polymer network are known; however, applicants contend that the limitations that "*it* being LC and orientable" and "*it* having functional groups for effecting hydrogen bonding with each other" is not taught in the reference.

The Examiner disagrees and notes that the word "*it*" can be used to refer to the optical recording medium, the liquid crystalline layer, the anisotropically aligned liquid crystalline polymer network, or the low molecular weight molecules. The Examiner has taken the broadest reasonable interpretation, which involves applying the limitation to the liquid crystalline layer. Clearly the liquid crystalline layer is orientable and has functional groups for effecting hydrogen bonding. The Examiner deems the limitation "with each other" to be an intended use limitation, and therefore any functional group capable of hydrogen bonding can hydrogen bond with each other.

With regard to applicants' arguments that the reference is different from the present claims because the reference discloses excellent adhesion, it is noted that the claims do not contain language drawn to adhesion. Given that the reference meets the

Art Unit: 1794

present claims in light of the broadest reasonable interpretation applied by the Examiner, it is clear to the Examiner that the reference teaches each and every single limitation of independent claim 1, and therefore there is no special technical feature that provides a contribution over the prior art; furthermore, given that there is no special technical feature that binds the groups together, the groups lack unity of invention.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 10-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/06/2008.

### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

4. The drawings are objected to because:

a. In Figure Va-Ve, please use 5a-5e to label these Figures to remain consistent with Figures 1-4, and also please make the appropriate corrections in the specification.

- b. Part **408** does not agree with the description provided in the specification at page 11, line 17.
- c. In Figure Vc, the subscript " $2m=1$ " appears to be incorrect, additionally, the linking group between the two halves of the molecule seems to indicate that the aryl groups are linked by an oxygen, when more likely it should be the sulfur through which the bond occurs.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

5. The abstract of the disclosure is objected to because it is longer than 150 words; additionally, please clarify to what the word “it” applies in lines 4-5 of the abstract.

Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

- a. On page 3, lines 10-14 please clarify to what the word “it” refers.
- b. On page 4, lines 2-6 there are a few typographical errors. Please see “characteristics: Other,” “triple quadruple hydrogen bonds,” and “covered This.”

Appropriate correction is required.

***Claim Objections***

7. Claim 1 is objected to because of the following informalities: the phrase “anisotropic aligned LC polymer network” is awkward. The words anisotropic and aligned are both adjectives. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1794

9. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The presence of a substrate is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). It is clear to the Examiner from the description at page 12, line 21 and Figures 2 and 3 that there must be a substrate present in applicant's optical recording medium.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, the term "low molecular weight molecules" is a relative term which renders the claim indefinite. The term "low molecular weight molecules" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what molecular weight is the boundary for low molecular weight molecules.

Claim 1 recites the limitation "it" twice in the fourth line of the claim. There is insufficient antecedent basis for this limitation in the claim. It is unclear if the two usages of the word "it" are relating to the same material or different material, and also exactly which material(s) that would constitute.

Claim 1 recites the limitation "with each other" in the fifth line of the claim. There is insufficient antecedent basis for this limitation in the claim. Even after rectifying the meaning of the word "it," this phrase would continue to be unclear to what "each other" encompasses.

With regard to claim 2, it recites the limitation "with each other" in the third and fifth line of the claim. These terms are confusing because it is unclear whether each other is referring to only members having functional groups and members not having functional groups individually, or whether it refers to the groups collectively.

Claim 3 recites the limitation "low molecular weight molecules with functional groups" in the second and third line of the claim. There is insufficient antecedent basis for this limitation in the claim. It is unclear what type of functional groups are being discussed here.

Claim 5 recites the limitation "the polymer network" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. Perhaps applicant meant "the anisotropic aligned LC polymer network."

Claim 6 recites the limitation "the polymer network" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. Perhaps applicant meant "the anisotropic aligned LC polymer network."

With regard to claim 6, a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation



Art Unit: 1794

given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 6 recites the broad recitations "0.1 to 40 wt. %" and "60-99.9 wt. %," and the claim also recites "preferably 5-10 wt. %" and "preferably 85-95 wt. %," respectively, which is the narrower statement of the ranges/limitations.

### ***Claim Rejections - 35 USC § 103***

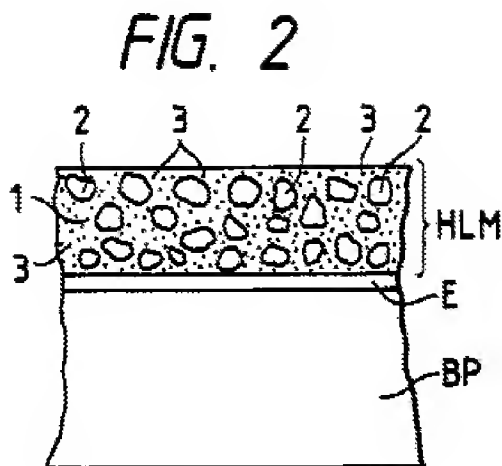
12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (5,124,183) in view of Hikmet et al. (5,188,760) and Horikiri et al. (6,333,081).

With regard to claims 1-3, 5, 6, and 9, Nakano et al. disclose the device of Figure

2.



The device is comprised of a substrate **BP** and a liquid crystalline layer **HLM** (or **PLM**). The liquid crystalline is comprised of a network polymer **1** and low molecular weight molecules **2**, which are liquid crystalline materials and are therefore orientable (col. 2, line 60 to col. 3, line 14 and col. 6, lines 16-29); however, Nakano et al. fail to disclose that the network polymer is also a liquid crystalline and they also fail to disclose low molecular weight molecules having functional groups for effecting hydrogen bonding.

Hikmet et al. disclose that it is known in the field of liquid crystal materials to form an anisotropic gel of a polymerized liquid crystal to go along with low molecular weight liquid crystalline materials (Abstract). They disclose that the preferential amount of polymerized liquid crystal network is smaller than 50% of the sum of the polymerized liquid crystal network material and the low molecular weight liquid crystalline material (col. 2, lines 38-44), preferably the polymerized liquid crystal network material is 3-10 % of the total layer.

Since Nakano et al. and Hikmet et al. are both drawn to liquid crystalline materials, it would have been obvious to one having ordinary skill in the art at the time

Art Unit: 1794

the invention was made to make the network polymer material of Nakano et al. a liquid crystalline network polymer as taught in Hikmet et al. The results of such a substitution would have been predictable to one having ordinary skill in the art. These materials are known equivalents; further, the motivation to substitute the materials can be found at col. 2, lines 6-8 of Hikmet et al. where they state that the orientation of the low molecular weight liquid crystal molecules can be brought about more quickly. They additionally disclose that these LC polymer networks provide a higher degree of anchoring for the low molecular weight liquid crystalline material (col. 5, lines 4-8), which helps to provide more reliable switching in said liquid crystal matrix.

Horikiri et al. disclose a gelling agent that may be combined in with low molecular weight liquid crystalline materials (col. 3, lines 30 to col. 4, line 3). The gelling agent utilizes hydrogen bonding in order to increase the viscosity of the liquid crystalline layer. The gelling agent is typically made of a low molecular weight amino acid derivative (col. 5, lines 56-67); further, the amino acid derivative may be substituted by mesomorphic groups in enhancing affinity and solubility with the low molecular weight liquid crystalline materials (col. 6, line 62 to col. 7, line 25). The ratio of the amino acid gelling agent to the low molecular weight liquid crystalline material can vary over a broad range, including 1:9, which is within applicant's claimed range (col. 10, lines 11-15).

Since Horikiri et al., Hikmet et al., and Nakano et al. are all drawn to liquid crystalline materials; it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine in the gelling agent of Horikiri et al. into the device of Nakano et al. in view of Hikmet et al. The results of the combination would

Art Unit: 1794

have been predictable; further, one of ordinary skill would understand that each of the components would perform the same in combination as they had separately. The motivation for adding this gelling agent are stated at col. 5, lines 22-32 of Horikiri et al., where they state that the gelling agent provides an increase in contrast, smooth switching, and good gradational display performance. Additionally they state at col. 3, line 55 to col. 4, line 3 that this hydrogen bonded supermolecular structure provides a way to have a strict ordered-structure. This is a benefit that compliments the teachings of Hikmet et al. because they are both drawn to improving an anchoring effect on the low molecular weight liquid crystalline materials; further, one of ordinary skill would understand that smooth switching with a precisely ordered matrix would be beneficial for the optical recording medium of Nakano et al. for the purpose of fast recording and high signal-to-noise data spots.

With regard to claim 4, Nakano et al. disclose that the medium may comprise a squallium dye, which is intrinsically fluorescent (col. 8, lines 19-63).

With regard to claim 7, the Examiner deems this claim to be a mere duplication of parts. It has been held that "mere duplication of parts has no patentable significance unless a new and unexpected result is produced." Please see MPEP 2144.04 and *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In this case there is no new and unexpected result as it is well known in the art of optical recording media to form storage media comprising two or more recording layers for the purpose of increasing the storage capacity of the medium.

Art Unit: 1794

With regard to claim 8, the Examiner deems prerecorded control information to be intrinsically present in the optical recording medium of Nakano et al. otherwise the disc would not be playable in conventional optical recording/reproducing devices.

14. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being obvious over Peeters et al. (WO 2004/001733), wherein the paragraph numbers in the national stage application US 2005/0254405 will be used for identification of the limitations, in view of Horikiri et al. (6,333,081).

With regard to claims 1-3 and 9, Peeters et al. disclose the optical recording medium of Figure 3.

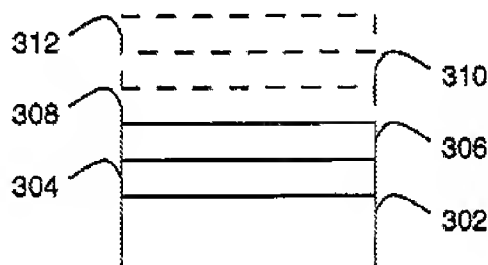


FIG.3

The device is comprised of a substrate **302** and a liquid crystalline recording layer **306** [0047]. The liquid crystalline recording layer has an anisotropic LC polymer network **108** and second type of liquid crystalline material **106** [0037]. The second type of liquid crystalline material is strongly anchored to the first type liquid crystalline network [0037] and is of a low molecular weight material [0072]; however, they fail to disclose a low molecular weight material capable of forming hydrogen bonds.

Horikiri et al. disclose a gelling agent that may be combined in with low molecular weight liquid crystalline materials (col. 3, lines 30 to col. 4, line 3). The gelling agent utilizes hydrogen bonding in order to increase the viscosity of the liquid crystalline layer. The gelling agent is typically made of a low molecular weight amino acid derivative (col. 5, lines 56-67); further, the amino acid derivative may be substituted by mesomorphic groups in enhancing affinity and solubility with the low molecular weight liquid crystalline materials (col. 6, line 62 to col. 7, line 25). The ratio of the amino acid gelling agent to the low molecular weight liquid crystalline material can vary over a broad range, including 1:9, which is within applicant's claimed range (col. 10, lines 11-15).

Since Horikiri et al. and Peeters et al. are drawn to liquid crystalline materials; it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine in the gelling agent of Horikiri et al. into the liquid crystalline layer of Peeters et al. The results of the combination would have been predictable; further, one of ordinary skill would understand that each of the components would perform the same in combination as they had separately. The motivation for adding this gelling agent are stated at col. 5, lines 22-32 of Horikiri et al., where they state that the gelling agent provides an increase in contrast, smooth switching, and good gradational display performance. Additionally they state at col. 3, line 55 to col. 4, line 3 that this hydrogen bonded supermolecular structure provides a way to have a strict ordered-structure. One of ordinary skill would understand that smooth switching with a precisely ordered matrix would be beneficial for the optical recording medium of Peeters et al. for the purpose of fast recording and high signal-to-noise data spots.

With regard to claim 4, Peeters et al. disclose a dichotic fluorescent dye **106** in the recording layer [0037].

With regard to claim 5 and 6, Peeters et al. disclose the weight percentage of the network polymer and the low molecular weight molecules at [0019], which overlap with applicant's claimed range. With regard to the ratio of low molecular weight molecules with a functional group to those without said functional group, the Examiner has rendered this ratio obvious based upon the teachings of Horikiri et al. above.

With regard to claim 7, Peeters et al. teach that multiple LC recording layers may be formed [0047] and Figure 3.

With regard to claim 8, pre-recording information may be formed in at least one of the LC layers [0057] and [0058].

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Examiner has provided references dealing with liquid crystalline layers and an evidentiary reference showing that squalium dyes are fluorescent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 9:30am-7pm est. (1st Friday off).

Art Unit: 1794

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gerard T Higgins, Ph.D.  
Examiner  
Art Unit 1794

/Gerard T Higgins, Ph.D./  
Examiner, Art Unit 1794

/Callie E. Shosho/  
Supervisory Patent Examiner, Art Unit 1794